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This chapter outlines the procedures followed in an experimental program for low-achievers during their freshman year at Southern Illinois University. Specifically described are the experimental design, selection of subjects, and the treatment according to the experimental, control, and norm groups. In addition, the sample group is described in terms of attitudes, background, sex differences, and performance on the American College Test battery. Appended are copies of various letters distributed to persons involved in the program and a detailed description of the interview and testing procedures. (For other chapters of this report, see UD 005309, UD 005310, UD 006858, UD 006859, and UD 006861) (LB)

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Southern Illinois University

A TWO-YEAR REPORT ON THE EXPERIMENTAL FRESHMAN YEAR PROGRAM

CHAPTER III

PROCEDURES

CONTENTS

Page

Introduction 1

Experimental Design 1

Selection of Subjects 5

Description of Sample 14

EFY Group Treatments 30

Summary 39

Appendices

A. Material Sent to High School Officials

B. Letters Sent to Students and Parents

C. Interview and Testing Procedure

D. Letter Sent by EFY to Southern Illinois University Applicants

E. Letter Sent by Admissions Office to Applicants

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SOUTHERN ILLINOIS UNIVERSITY

Experimental Freshman Year Program

CHAPTER III

PROCEDURES

The four major sections in this chapter are titled the experimental design, the selection of subjects, description of the sample, and the group treatments. An appendix included at the end of the chapter contains copies of letters, tests, forms and other items mentioned in the chapter.

Introduction

The major objectives of the Experimental Freshman Year Program (EFY) were to determine whether low-achieving high school students with some indications of ability to succeed in college could be (1) identified and (2) provided during their freshman year with experiences resulting in success in college for a large proportion of them. To meet the objectives of the EFY Program an experiment was conducted in which a number of variables were explored relative to identifying, educating, and providing services for college freshmen who have a history of low achievement in high school. The procedures involved in conducting the Experimental Freshman Year Program are discussed in this chapter.

Experimental Design

The experimental design for the Experimental Freshman Year Program specified that 400 Illinois students graduating in the lowest one-third of

their high school classes were to be divided into two groups on the basis of the American College Test composite mean score and then randomly assigned to two experimental and two control groups; also 200 Illinois students graduating in the upper two-thirds of their high school class were to be selected from among students admitted to the University on the regular admission criteria, were to be divided into two groups on the basis of the ACT mean score, and then were to be randomly assigned to two norm groups. Groups I and II were designated as the experimental groups; Groups III and IV were labeled as the control groups; and Groups V and VI were assigned as the norm groups.

Table 3.1 presents the experimental design with the number of students which were to be assigned to each respective group.

TABLE 3.1

DESIGN FOR EXPERIMENTAL FRESHMAN YEAR PROGRAM

ACT* Classification	Lowest One-Third				Upper Two-Thirds		Total
	Experimental Groups		Control Groups		Norm Groups		
	I	II	III	IV	V	VI	
ACT 20+ (Above the Mean)	50	50	50	50	50	50	300
ACT 19- (Below the Mean)	50	50	50	50	50	50	300
Total	100	100	100	100	100	100	600

* American College Test composite score.

The treatment for students in Group I was a specially designed program employing a variety of instructional procedures. The Group II students were

enrolled in the regular University general education courses, a counseling program, and remedial studies courses. The students assigned to Group III took regular University general education courses and had some contact with the EFY Program but experienced no special educational treatment. The students in Groups IV, V and VI had no contact with the EFY Program. Their college records were used to provide normative data for comparison with the other three groups. A more extensive description of the group treatments is presented later in this chapter.

The purpose of the experimental design was to plan the study and the organization of the data in such a manner that the research questions examined in the study could be answered. The experimental design provided various ways of grouping the subjects for examining any one criterion measure. Four particularly appropriate ways of grouping the subjects were: (1) on the basis of ACT scores which divided all subjects into two groups, those with ACT scores of 20 and above and those with ACT scores of 19 and below; (2) on the basis of the six EFY groups to which subjects were randomly assigned; (3) on the basis of the six EFY groups in addition to the ACT score classification, this basis resulting in twelve distinct sub-groups; and (4) on the basis of experimental groups, control groups, and norm groups, this method providing three further subdivisions for each of the three groupings listed above.

Furthermore, the experimental design provided conditions for evaluating the effects of two different experimental treatments (1) on lowest one-third students who scored 20 and above on the ACT and (2) on lowest one-third students who scored 19 and below on the ACT and who had been recommended by their high school counselors and selected by means of a special interview.

This design permits the experimental groups to be compared with control and norm groups. Other analyses provided by the design included the evaluation of the effectiveness of a special interview procedure originated for identifying those students who, even though graduating in the lowest third of their high school class and scoring 19 or below on ACT, could achieve success in college.

Identification of Major Classifications of EFY Subjects into Groups. First, the six groups specified in the design are referred to throughout this report as EFY groups and are identified by the Roman numerals I through VI. At specific times in the report a distinction is made between EFY groups, Groups I, II, III and IV, and norm groups, Groups V and VI.

Second, the subjects are classified by composite ACT scores into two categories referred to as High's and Low's. The term High's refers to all subjects with ACT scores of 20 or higher, and the term Low's refers to all subjects with ACT scores of 19 or lower. This classification is independent of the first classification, the six EFY groups.

A third classification of the subjects combines those categories described in the first two classification systems. In this third data classification system the subjects in the six EFY groups are subdivided with respect to the High or Low composite ACT score categories. Once again, the term High's refers to subjects with composite ACT scores of 20 or higher and the term Low's refers to students with ACT composite scores of 19 or lower. Also, in some tables where brevity is a paramount consideration, ACT 20+ and ACT 19- are used in place of the High and Low designation. The classification of EFY groups by High or Low categories yields twelve

subgroups with each subgroup having two designations, an EFY group and an ACT classification. These subgroups are identified as follows: Group I High; Group I Low; Group II High; Group II Low; and so on for the six groups. Any other classification of EFY subjects is defined for the specific case when it occurs in the report.

Selection of Subjects

The five procedures followed in selecting the subjects for the Experimental Freshman Year Program are described in this section.

Selection Procedure Number One. In March, 1962, an announcement was sent to all Illinois high school principals, district superintendents, county superintendents, and officials of the Illinois Board of Education. This announcement included a general description of a special educational research program to be conducted at Southern Illinois University, a list of eligibility requirements for subjects, and a request that names of eligible applicants be submitted. The eligibility requirements were (1) that the student rank in the lowest one-third of his high school graduating class, (2) that the student's composite standard score for the American College Testing Program be below 20, (3) that the student be an Illinois resident, (4) that the student be a graduate of a recognized Illinois high school, and (5) that the student not have attended college previously. The principals and superintendents passed the announcement on to teachers and counselors who then recommended students for the program. The letter and printed brochure which made up the announcement are included in Appendix A of this chapter.

Each student who was recommended for the program was sent a mailing which included a letter for the student, a letter for the student's parents,

a secondary-school record form, and a booklet containing general information on Southern Illinois University. Copies of the letters are in Appendix B of this chapter.

The majority of the students whose names were submitted had not taken the ACT or the College Entrance Examination Board Test. However, as a result of the encouragement of the principals and counselors, most of the students satisfied the entrance requirement by taking the ACT in April and May.

When the EFY office had received a letter from the student and the completed secondary-school record form from the student's high school administrator, the student was sent a letter which assigned him an appointment time at which he was to report to the EFY office on the Carbondale campus to be interviewed and tested.

The following is a brief description of the procedure followed when applicants were interviewed and tested at the Experimental Freshman Year office on the Carbondale campus. Only the students referred to in selection procedures number one and number two experienced this procedure. A detailed description of the interview and testing procedure and a discussion of the rationale employed in evaluating the test, along with copies of the tests and forms, are included in Appendix C of this chapter.

1. When an applicant arrived at the EFY office, he was first informed of the approximate time required for his interview and tests. Parents or friends who accompanied the applicant were asked to leave the office and to return when the interview and tests were completed.

2. The applicant was then asked to write a summary of his experiences for the twenty-four hour time period preceding his arrival at the EFY office. He was asked to take approximately thirty minutes to write the summary.

3. Each applicant was interrupted briefly as he was writing his summary in order to have a polaroid photograph made. The photograph was stapled into the applicant's file folder.

4. When an applicant completed his summary, he was then directed to another room and introduced to the interviewer, Mr. Harold Cohen. Prior to the interview, Mr. Cohen had been provided with and had examined a folder containing general high school information on the applicant.

5. The interviews averaged between twenty-five minutes and one hour in length. They followed a pattern prescribed by an interview form sheet. Audio tape recordings of the interviews were made by means of a concealed microphone connected to a tape recorder in an adjoining room.

6. When an interview was completed and the applicant had left the room, the interviewer indicated, on the mimeographed interview form and on the audio tape, whether the applicant was accepted for the EFY Program.

7. The applicants were then directed to another room for the testing session. For the majority of the applicants, there was a time lapse of approximately one hour between the interview and the test, and they were encouraged to leave the office and return for the testing session.

8. The applicants were usually tested in groups of from three to six persons; however, some were tested individually. The testing sessions lasted approximately one and one-half hours and generally were administered twice daily, at 12:15 P.M. and 4:00 P.M.

9. Four tests were administered during the sessions. The first test was a word association test designed to measure divergent thinking. The second test was a visual observation test which required subjects to draw pictures of some objects in the testing room. The third test was an Inspection Test which examined ability to spot flaws or imperfections in pictures of small objects quickly and accurately. The fourth test was a Components Test and was purported to test the applicant's ability to identify a simple figure that was disguised as part of a complex drawing.

10. Upon completing the tests, the applicants were informed that they would be notified within two weeks whether or not they were selected for the Experimental Freshman Year Program.

With this procedure 155 students were interviewed, 107 were selected, and 99 actually started the program. Of the 99 who started the program, 82 had ACT scores of 19 and below and 17 had ACT scores of 20 and above.

Selection Procedure Number Two. In April, 1962, the Admissions Office at Southern Illinois University compiled a list of 174 names of persons who had applied for admission to Southern Illinois University for the Fall Quarter, 1962, and who satisfied the five eligibility requirements described in the previous selection procedure. These students were sent mailings which included a letter for the student and one for the parents, plus a secondary-school record form, and a Southern Illinois University general information brochure. The parents' letter, the secondary-school record form, and Southern Illinois University brochure were identical to those sent to students recommended by principals and counselors. However, the student's letter was different for this group of students, who had of their own initiative applied for admission to Southern Illinois University. A copy of this letter is in Appendix D of this chapter.

Secondary-school records were already on file at Southern Illinois University for these students since they had applied for admission to Southern Illinois University prior to being informed of the EFY Program. When a personal letter was received from these students, they were assigned an appointment to be interviewed and tested.

The same procedure as described in selection procedure number one was followed next; e.g., students came to Southern Illinois University and were interviewed and tested. With this procedure 65 students were interviewed, 49 were selected and 44 started the program.

Selection Procedure Number Three. Two different groups of students were selected by the following procedure. First, students who had applied for admission to Southern Illinois University prior to the summer of 1962

and who satisfied the eligibility requirements were notified by the Southern Illinois University Admissions Office of the EFY Program in July. These students normally would not have been permitted to enter Southern Illinois University in the Fall Quarter; however, this restriction was waived for those who wished to participate in the EFY Program.

A second group of students was also selected in this same manner. These students had graduated in the lowest one-third of their high school graduating class, but they had scored 20 or above on the ACT. Students in this category were normally permitted to enter Southern Illinois University in the Fall Quarter; however, they would normally be admitted on probation, a status which meant that students had to make a "C" average in their first quarter in order to remain in school. The Admissions Office sent a form letter to these students informing them that they had been selected to participate in the EFY Program. A copy of this letter is in Appendix E of this chapter.

The system employed by the Admissions Office for determining which students were to be notified is not known. With this unidentified procedure 154 students were notifed, and 77 started the program. Of the 77 students starting the program, 66 had ACT scores of 20 and above, and 11 had ACT scores of 19 and below.

Selection Procedure Number Four. During the Fall Quarter of 1963, the EFY staff and the Southern Illinois University Admissions Office staff selected at random the names of 50 students who had ACT scores of 20 and above, who ranked in the lowest one-third of their graduating class, and

who had applied for admission to Southern Illinois University for the Fall Quarter. In addition, during the Winter Quarter the names of 50 other students were selected at random from the category of students who were from the lowest one-third of their graduating class, who had ACT scores of 19 and below, and who had been admitted to Southern Illinois University in the Winter Quarter, 1963. These two groups of 50 students each were to comprise the Group IV specified in the experimental design, and as a pure control group, they were not informed that they were included in the study.

The reason one of the groups of 50 students was selected from the Winter Quarter admissions list was that the standard Southern Illinois University policy, mentioned earlier, required these students ranking in the lowest one-third of their high school graduating class and scoring 19 or below on the ACT to begin school in some quarter other than Fall Quarter.

The EFY staff and the Admissions Office staff employed the following procedure for selecting Group IV students: (1) the names of all students who had applied for admission and who satisfied the requirements were listed alphabetically each term; (2) the names of 50 students in each ACT classification were selected at random, the ACT High's being selected Fall Quarter and the ACT Low's being selected Winter Quarter.

Of the 100 students designated, 55 actually started school. Of the 55 who started school, 21 had ACT scores of 20 and above, and 34 had ACT scores of 19 and below.

Selection Procedure Number Five. The two groups of students who were to serve as the normative group, indicated in the experimental design as Groups V and VI, were selected in the following manner. A list of all students who had not already been selected for the EFY Program by one of

the previously mentioned procedures and who entered Southern Illinois University in the Fall Quarter, 1962, was compiled. This list of students was then divided into two lists on the basis of the ACT scores. Those students with scores of 20 and above were placed on one list, and those with 19 and below were placed on the other list. These two lists were then alphabetized, and every tenth person was assigned, alternately, to one of the two norm groups. There were 200 students selected by this procedure; 100 students were assigned to each of the two groups; within each group of 100 students, 50 had ACT scores of 20 and above, and 50 had ACT scores of 19 and below. All of the students in these two norm groups were from the upper two-thirds of their high school graduating class. These students were not informed that they were included in the study.

The five selection procedures and resulting numbers of subjects who started the EFY Program are summarized in Table 3.2.

Qualifications in Sample Selection Procedures. The original design for the program specified that students who graduated in the lowest third of their high school graduating classes be randomly assigned to four groups with equal numbers in each group. Because not enough subjects applied to participate in the program and because not enough subjects could be recruited or assigned by the Admissions Office to participate in the program, it was necessary to modify the planned procedure for assigning subjects to the four EFY groups. The five selection procedures indicate the modifications of the original plan of random assignment of an equal number of subjects to each of the four EFY groups.

Essentially the modification of the original plan for assigning subjects to groups included: (1) Subjects were randomly assigned to one of the three

TABLE 3.2

PROCEDURES FOR SELECTING SUBJECTS WHO STARTED THE EXPERIMENTAL FRESHMAN YEAR PROGRAM

Selection Procedure	No. of Subjects	
	ACT Classification	
	20+	19-
1. Recommended by High School Administration, Selected by Interview	17	82
2. Applied to SIU, Selected by Interview	1	43
3. Applied to SIU, Notified by Admissions Office	66	11
4. Applied to SIU, Designated by Admissions Office	21	34
5. Entered SIU, Designated by Admissions Office	100	100
Total	205	270

basic EFY groups, Groups I, II and III, and were classified by the High or the Low ACT category. (2) During Fall Quarter Group IV subjects were randomly assigned from a list of students who had ACT scores of 20 or higher, who graduated in the lowest third of their high school graduating class, but who had not elected or been assigned by the Southern Illinois University Admissions Office to participate in the EFY Program. Most of these students were students who had been admitted to Southern Illinois University prior to the time when the Admissions Office encouraged or directed students who met the specified criteria to apply for the EFY Program. (3) During Winter Quarter, the names of students who were newly admitted to Southern Illinois University, who graduated in the lowest third of their high school class, and who received an ACT composite score of 19 or lower were listed. These students were randomly assigned from this list to Group IV to make up the Group IV Low category. Not enough students were admitted to Southern Illinois University to assign subjects to the appropriate ACT categories for all four EFY groups, Groups I, II, III and IV. However, enough subjects were available to assign subjects to the three primary groups, Groups I, II, and III, as planned; enough subjects had previously been admitted to assign subjects randomly to the Group IV High category; and enough subjects enrolled during Winter Quarter to assign subjects to the Group IV Low category.

Furthermore, the precedence of randomly assigning subjects to groups on the basis of being admitted to Southern Illinois University, rather than on the basis of actually attending Southern Illinois University, was established in the selection procedures. The procedure of selecting subjects

for groups from those students who were admitted to Southern Illinois University was followed in the random selection procedure of students for the norm groups.

The number of students in each group who were expected to start the program and the number who actually started the program are reported in Table 3.3 and Table 3.4 respectively.

Description of the Sample

To determine whether the six EFY groups, which were randomly assigned, were equally matched with respect to specific criteria, the following variables were examined: ACT scores, sex, and information obtained from a questionnaire administered during the Fall Quarter.

ACT Scores. The ACT test battery is composed of four sub-tests including English, mathematics, social studies, and natural science. A composite score, which is the average of the four sub-test scores, is also reported from the ACT battery. The ACT composite mean scores and standard deviations were computed for each of the six EFY groups and for each of the twelve subgroups based upon EFY group and ACT High/Low classification. These data are reported in Tables 3.5, 3.6, and 3.7.

It was assumed that because subjects in each ACT/High and ACT/Low classification were assigned randomly that no statistically significant differences would exist among Groups I, II, III, and IV in respect to

TABLE 3.3

THE NUMBER OF SUBJECTS WHO WERE EXPECTED TO START THE EXPERIMENTAL FRESHMAN YEAR PROGRAM CLASSIFIED BY GROUP AND ACT SCORE

	Lowest One-Third				Upper Two-Thirds		
	Experimental Groups		Control Groups		Norm Groups		
ACT Classification	I	II	III	IV	V	VI	Total
ACT 20-	43	46	45	50	50	50	284
ACT 19—	52	51	51	50	50	50	304
Total	95	97	96	100	100	100	588

TABLE 3.4

THE NUMBER OF SUBJECTS WHO STARTED THE EXPERIMENTAL FRESHMAN YEAR PROGRAM CLASSIFIED BY GROUP AND ACT SCORE

	Lowest One-Third				Upper Two-Thirds		
	Experimental Groups		Control Groups		Norm Groups		
ACT Classification	I	II	III	IV	V	VI	Total
ACT 20-	22	30	32	21	50	50	205
ACT 19—	44	44	48	34	50	50	270
Total	66	74	80	55	100	100	475

TABLE 3.5

ACT COMPOSITE STANDARD SCORE DATA FOR ALL EFY SUBJECTS CLASSIFIED BY EFY GROUPS

Groups	N	Mean	Stand. Dev.
I	66	18.05	3.51
II	74	18.42	3.65
III	80	18.48	3.65
IV	55	16.76	4.87
V	100	19.61	4.20
VI	100	19.29	4.67

TABLE 3.6

ACT COMPOSITE STANDARD SCORE DATA FOR EFY SUBJECTS WITH ACT SCORES OF 20 AND ABOVE CLASSIFIED BY EFY GROUPS

Groups	N	Mean	Stand. Dev.
I	22	22.318	1.672
II	30	22.034	1.592
III	32	22.068	2.186
IV	21	21.809	1.536
V	50	22.940	2.621
VI	50	23.020	2.824

TABLE 3.7

ACT COMPOSITE STANDARD SCORE DATA FOR EFY SUBJECTS WITH ACT SCORES OF 19 AND BELOW CLASSIFIED BY EFY GROUPS

Groups	N	Mean	Stand. Dev.
I	44	15.91	1.82
II	44	15.95	2.42
III	48	16.19	2.42
IV	34	13.65	3.35
V	50	16.28	2.47
VI	50	15.56	2.77

aptitude as measured by ACT. It was expected that differences would occur between Groups I, II, III, and IV, and Groups V and VI, the norm groups, because the norm groups were representative of students who had ranked in the upper two-thirds of their high school graduating classes. It was also expected that the High's within each group would be significantly higher than the Low's within each group, and that the High's from all six groups combined would be significantly higher than the Low's from all groups combined.

To test the assumption that the groups were all equal in respect to ability as measured by ACT, the ACT composite mean scores for each group and subgroup were compared by means of the analysis of variance statistical test. Where a statistically significant F, at a confidence level of .05 or above, was computed, t-tests for independent measures were then computed between the groups to determine the statistical significance of the difference between individual group means. The analysis of variance results for the EFY groups and subgroups on ACT composite standard scores are reported in Tables 3.8, 3.9, and 3.10.

As expected, the High's within each group were found to be significantly higher than the Low's within each group and the High's from all six groups combined were significantly higher than the Low's from all six groups combined.

TABLE 3.8

RESULTS OF ONE-WAY ANALYSIS OF VARIANCE COMPARING ACT COMPOSITE STANDARD SCORES FOR ALL EFY SUBJECTS CLASSIFIED BY THE SIX EFY GROUPS

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F
Between Groups	358.600	5	71.720	
Within Groups	7999.400	468	17.092	
Total	8358.000	473		4.195

TABLE 3.9

RESULTS OF ONE-WAY ANALYSIS OF VARIANCE COMPARING ACT COMPOSITE STANDARD SCORES FOR EFY SUBJECTS WITH ACT SCORES OF 20 AND ABOVE CLASSIFIED BY THE SIX EFY GROUPS

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F
Between Groups	52.800	5	10.560	
Within Groups	1051.200	199	5.282	
Total	1104.000	204		1.999

TABLE 3.10

RESULTS OF ONE-WAY ANALYSIS OF VARIANCE COMPARING ACT COMPOSITE STANDARD SCORES FOR EFY SUBJECTS WITH ACT SCORES OF 19 AND BELOW CLASSIFIED BY THE SIX EFY GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between Groups	177.000	5	35.400	
Within Groups	1707.400	263	6.492	
Total	1884.400	268		5.452

The results of the t-tests, which were computed when two F's were found to be statistically significant, are reported in Table 3.11. Included in Table 3.11 are N's, means, standard deviations, t values, and the significance level for groups found to be significantly different, at a .05 level of significance or greater.

The two F's which were found to be statistically significant are reported in Table 3.8 and Table 3.10, and resulted (1) from ACT comparisons of EFY subjects classified by EFY groups and (2) from ACT comparisons of EFY subjects with ACT scores of 19 or below classified by EFY groups. The EFY subjects with ACT scores of 20 or above classified by EFY groups were not significantly different. The t-test analysis was, therefore, not computed for groups classified by ACT scores of 20 or above.

It can be seen in Table 3.11 that five statistically significant t values were found among the comparisons of EFY group ACT composite score means. Of the five significant t values, four involved comparisons with Group IV. The remaining significant t value was for the comparison between Group I and Group V.

Three of the significant t values involve comparisons in which Group V or VI, the norm groups selected from the population of 1962 Southern Illinois University freshmen who graduated in the upper two-thirds of their high school graduating class, are compared with Group I or IV, the groups made up of students who graduated in the lowest one-third of their high school graduating class. This finding was not considered unusual, and the significant differences occurring between Groups I and V, between Groups IV and V, and between Groups IV and VI are interpreted as reflections of the rank-in-class criterion differences.

TABLE 3.11

SIGNIFICANT T-TEST AND RELATED DATA ON ACT COMPOSITE STANDARD SCORES FOR EFY SUBJECTS COMPARED BY GROUPS AND ACT HIGH/LOW SUBGROUPS

Groups Compared Higher Group Lower Group	N	Mean	Standard Deviation	t value	Significance Level
II	73	18.4	3.65	2.19	.05
IV	55	16.8	4.87		
III	80	18.5	3.65	2.32	.05
IV	55	16.8	4.87		
V	100	19.6	4.20	2.33	.05
I	66	18.1	3.51		
V	100	19.6	4.20	4.00	.001
IV	55	16.8	4.87		
VI	100	19.3	4.67	3.55	.001
IV	55	16.8	4.87		
I Low	44	15.9	1.82	3.67	.001
IV Low	34	13.7	3.35		
II Low	43	16.0	2.42	3.73	.001
IV Low	34	13.7	3.35		
III Low	48	16.2	2.42	4.20	.001
IV Low	34	13.7	3.35		
V Low	50	16.3	2.47	4.39	.001
IV Low	34	13.7	3.35		
VI Low	50	15.6	2.77	3.19	.01
IV Low	34	13.7	3.35		

The other statistically significant differences reported in Table 3.11 cannot be interpreted similarly, however, since the differences exist between groups made up of students all of whom graduated in the lowest one-third of their high school graduating class. The ACT mean score for Group IV is the lowest score of all groups, and was significantly lower than the mean ACT scores for Groups II and III. In addition, the significant differences which were found when the ACT Low subgroups were compared showed that Group IV Low was significantly different from all other Low subgroups. It can also be seen in Table 3.11 that the significant differences between Group IV and Groups V and VI are a reflection of the exceedingly low mean ACT score of Group IV Low's.

It was assumed that there would be no statistically significant differences as measured by ACT scores among the students who graduated in the lowest third of their high school class. The application of the analysis of variance, and subsequently the t-test, to the ACT data classified with respect to EFY groups indicated that the assumption that the groups were equal with respect to aptitude as measured by the ACT was invalid.

The possible cause or causes for the difference between Group IV and the other experimental and control groups as measured by the ACT composite score is that Group IV Low's were either made up of persons who applied for entry to Southern Illinois University after the other EFY subjects had been selected; or made up of persons who were not selected for the EFY Program by the Admissions Office for some reason such as high school record criteria or ACT scores, a reason evident and influential at the time admission forms were completed.

In order to adjust for the statistically significant differences on the ACT scores between Group IV and other experimental and control groups, the analysis of covariance statistical technique on such criteria as grade point averages (GPA) was employed. The analysis of covariance technique in this case serves to make all the groups comparable with respect to the uncontrolled variable, in this instance ACT. The results of all data analyses on ordinal or interval data involving Group IV were statistically equated on the basis of scholastic aptitude, ACT, through the method of analysis of covariance. The result of using this technique is to adjust mean scores on the measure being analyzed to represent what the scores on the measure would have been if the students in all groups had equal scholastic aptitude.

The same statistical analysis on the ACT data described above was computed for subjects remaining in school at the end of each of the six quarters. The results of this statistical analysis indicated whether the subjects in the various groups and subgroups were equally matched on ACT each quarter. Changes were possible among group and subgroups on ACT scores each quarter because students were leaving school periodically. When groups were found to differ significantly on ACT scores for a given quarter, the analysis of covariance procedure described above was applied to the criterion measure being examined to adjust for ACT differences.

Sex Distribution. The second criterion which was examined to determine whether the EFY groups and subgroups were equally matched at the beginning of the program was the distribution of males and females in each group. It was important to examine the equality of sex variables among groups because sex has been shown to be a significant variable in respect to achievement,

particularly where under-achievers are concerned. The reader is referred to Chapter II where some recent studies supporting this point of view are discussed.

Although no attempt was made to divide males and females equally among Groups I, II, III, and IV, it was expected that the random assignment of subjects would provide an equal distribution among these groups by sex. It was also expected that Groups V and VI might differ significantly from the other groups in respect to sex classification because males have been shown to be low achievers more frequently than females. Therefore, groups such as Group V and Group VI composed of students from the upper two-thirds of their high school graduating classes might be expected to have more females than would Groups I, II, III, and IV composed of students from the lowest third of their high school classes. The distribution of males and females classified by EFY groups is reported in Table 3.12.

Chi-square statistical tests were performed on the EFY group distributions of males and females to determine whether the differences in the distribution for each sex were statistically significant. Table 3.13 reports the significant chi-square results from the comparison of the number of males in the EFY groups and the significant chi-square results from the comparison of the number of females in the EFY groups.

The results of the male distribution analysis are

1. Group V had a significantly greater number of males than Groups I, II, III, and IV.

2. Group VI had a significantly greater number of males than Group II.

3. There were no significant differences in the number of males in groups among Groups I, II, III, and IV.

4. Groups V and VI were not significantly different in regard to the number of males in each group.

TABLE 3.13

SIGNIFICANT CHI-SQUARE RESULTS ON COMPARISON OF MALE AND FEMALE DISTRIBUTION IN EFY GROUPS

Group With Greater No.	Group With Lesser No.	Chi-Square	Significance Level
	Male Distribution		
V	I	6.50	.02
V	II	9.80	.01
V	III	8.28	.01
V	IV	7.30	.01
VI	II	4.31	.05
	Female Distribution		
V	I	11.49	.001
V	II	20.65	.001
V	III	16.56	.001
V	IV	12.92	.001
VI	I	5.68	.02
VI	II	12.75	.001
VI	III	9.00	.01
VI	IV	12.92	.01

The results of the female distribution analysis are

1. Group V had a significantly greater number of females than Groups I, II, III, and IV.

2. Group VI had a significantly greater number of females than Groups I, II, III, and IV.

3. There were no significant differences in the number of females in groups among Groups I, II, III, and IV.

4. Groups V and VI were not significantly different in regard to the number of females in each group.

These findings were not unexpected. Supporting evidence from past studies dealing with sex and achievement, points to the reasonable conclusion that students in the upper two-thirds of their high school graduating class might be expected to have a higher proportion of females than students graduat- in the lowest third of their high school class. Therefore, because there were no sex distribution differences between Groups I, II, III, and IV and because this is one of the expected and real differences between students entering the University under regular admission criteria and students entering on a probationary status, no attempt was made to control for sex differences among groups in the analysis of the criterion measures.

Attitude and Biographic Factors. A questionnaire was administered to the EFY subjects in Groups I, II, and III shortly after the EFY treatment had started. Some of the items on the questionnaire provided attitude and biographic data which could be examined to determine whether the particular EFY groups and subgroups were equally matched in regard to these factors. A discussion of previous studies on these elements can be found in Chapter II. Because past research shows attitudes and biographic information to be related to achievement, data based on these items were examined, and the findings are reported here. This was the fourth and final set of criteria examined to determine the extent of EFY group and subgroup homogeneity.

Both the chi-square and t-test statistical tests were employed in analyzing the questionnaire response data. The chi-square test was used to compare groups' response patterns on items in which response categories were mutaully exclusive. The t-test was typically used to compare groups' responses on scaled questionnaire items. Because of the lack of agreement among statistical experts as to whether items scaled on a 1-5 scale are actually interval, ordinal, or nominal data and as to whether the t-test for independent measures actually can be justifiably applied to such data, a chi-square test was also applied to subjects' responses recorded on a 1-5 scale. Where discrepancies between the results of the two statistical tests occurred, the results of both statistical tests are reported. Complete findings for the questionnaire data are reported in Chapter V.

The following is a brief summary of the findings which are considered appropriate for verifying the success of the random assignment in respect to attitudes and biographic data of subjects assigned to EFY groups. Chapter V of this report contains the entire questionnaire study, and the following summary is abstracted from page 53 of that chapter.

The EFY groups and subgroups were equal in regard to self-evaluations of their academic ability, in regard to biographic data, and in regard to other normative data at the start of the EFY Program; in other words, as groups they did not differ significantly from one another in biographical, school-related, parent-related, or self-evaluation variables at the start of the program.

Some differences were found when comparisons were made between subjects classified as ACT High and those classified as ACT Low. These differences were considered as those which might be expected, however. For example, High's more often had had a "college preparatory" curricula.

In general, it was concluded that, in regard to attitudes and biographical data, the EFY subjects were equally distributed among groups and subgroups. Therefore, no statistical analysis was undertaken to adjust for any differences in future analyses of criterion measures.

EFY Group Treatments

The general procedures followed during the treatment phase of the EFY Program, including the experimental treatments experienced by Groups I and II, are described in this section.

EFY Test Battery. A battery of tests was administered to the students before the program started and again during the last few weeks the program was in progress. In order to complete the comprehensive testing program, the students in Groups I, II, and III were required to report to the University one week before classes started. The 17-hour pretest battery was administered in six days through the University Testing Service. The posttest battery was administered in four half-day sessions and one full-day session during the last few weeks of Spring Quarter. The following tests were used in the pre- and posttest battery: Wonderlic Personnel Test; Iowa Silent Reading Test; Michigan State University Tests: Critical Thinking, Math, English; Sequential Tests of Educational Progress: Essay Writing, Reading, Listening, Math, Science, Social Studies; Cooperative School and College Ability Tests; Attitude and Information Questionnaire; Wrenn Study Habits Inventory; Oliver Educational Interest Inventory; Guilford-Zimmerman Temperament Survey; Minnesota Multiphasic Personality Inventory. Used only in the posttest battery were: Semantic Differential Index; Watson-Glaser Critical Thinking Test; Extra-curricular Activities Questionnaire; Group I Attitude Questionnaire.

Probation Status Exemption. The EFY students in Groups I, II, and III were assured one year at Southern Illinois University regardless of their

scholastic performance. However, eight subjects in Group I were dropped from school in the first year due to excessive absenteeism. Normally, students from the lowest one-third of their high school graduating class are admitted on probation and are subject to being dropped from school if they do not maintain at least a "C" average.

Group I

The students in Group I had a non-traditional curriculum; the contents, methods, and materials were designed by Harold Cohen, originator of the EFY Program and coordinator of the Group I program, and his staff.

All 66 students in Group I were taught at the same time, whether it was a lecture or a laboratory session. There was no breakdown into small-group subdivision. The only time a breakdown occurred was when each student was sent to his office for reading assignments or individual research activity.

A primary emphasis in the Group I curricula was the holistic method of education, often referred to as a core curricula. Stressing the interrelatedness of knowledge, this method employed subject matter organized into a series of "general to specific" experiences within a planned one-year sequence.

Extensive effort was made to raise the students' motivation and interest levels along with academic performances. Some examples of the variety of instructional techniques explored in the Group I program were: the use of individual "home base" study carrels; special testing methods which provided both immediate and delayed knowledge of results; guest lectures by telephone and in person; programmed instruction; numerous films; and a juke box offering poetry, classical music, and lectures. The classrooms, study spaces, and facilities were designed specifically for the one-year program.

The students were instructed to keep personal records of academic performance. Flexible time scheduling for classes was explored. Class periods were often fitted to the subject and to the students' ability to maintain active interest instead of being fitted to the clock. Some students did extra work with programmed instruction in English, mathematics, and chemistry.

The Group I curricula was divided into six subject areas and coordinated for maximum interrelatedness of content. The number of hours for which students were scheduled to attend class diminished each quarter from 31 hours per week during the Fall Quarter, to 21 hours Winter Quarter, and to 16 hours Spring Quarter. Some students took regular University courses in addition to the Group I program during the Winter and Spring Quarters. The six subject areas of the Group I program are briefly summarized.

University Studies. The University Studies curriculum was designed to treat the physical, biological, and social sciences from both the scientific and the philosophic points of view. In the Fall Quarter this sequence of study included theories of cosmology; the sun and solar system; the nature of light, gravity, magnetism; the atom; the elements; the physical states of matter; and the earth sciences.

The development of a definition of life from the biological point of view was the concentration in the Winter Quarter. A biochemical approach was followed in the study of the structure of the generalized cell, the organelles and their function, the processes vital to the functioning of the cell, and the basic chemistries in the nutrition, respiration, metabolism, growth, and reproduction of cells and simple micro-organisms. Simultaneously with the cell biology course, the history of man was investigated,

and the definitions of a human being were considered from evidence presented by physical and cultural anthropology, ecology, evolutionary theories, religion, and philosophical speculations.

The Winter Quarter also included two activities in which individual initiative was required. First, with the use of logic and scientific method, the student was required to solve a problem much like the problems earliest man, with his limited tools and resources, must have faced. The second was an individual research problem in which the student conducted research, wrote a report, and presented a verbal or visual demonstration of his work. The areas selected ranged from the writing of poetry to experiments in behavioral science.

In the first six weeks of the Spring Quarter, the development of the government, art, crafts, industry, social structure, and philosophy of the ancient Greeks was studied. Following was a three-week study of the Renaissance, with particular emphasis on the Florentine state. Finally, using a Sunday edition of the St. Louis Post-Dispatch newspaper as a text, the students spent the last two weeks in a review of American culture today.

Verbal Studies. The Verbal Studies area began with a survey of the functions and problems of language with which a student is confronted when attempting to communicate purposefully. Following the study of semantics, an assignment of a series of themes prepared the student for competency in writing the major research paper required in Winter Quarter. Throughout both Fall and Winter Quarters there was heavy emphasis upon critical analysis of reference information and upon achieving clarity in writing through the use of formal grammar, rhetoric, methods of paragraph organization, and

purposeful details. Also included in the first two quarters was the reading of various novels, such as The Catcher in the Rye, High Wind in Jamaica, Lord of the Flies, and The Turn of the Screw.

Spring Quarter was spent concentrating upon the literary aspects of written prose and poetry. The course included an introduction to fiction with the first six weeks given to reading the plays of Sophocles, Euripides, Aeschylus, and Aristophanes. Pursuing the ideologies of the theologians and the philosophers, the students spent three weeks studying Dante's Divine Comedy. A telephone lecture series by Harry T. Moore was given at this time. This series was used also to correlate with the University Studies course that was emphasizing Italian Renaissance with its revival of classical literature, philosophy, and art. The final weeks of the Spring Quarter were spent concentrating upon plays which reflected dominant contemporary attitudes and ideologies.

Visual Studies. Visual Studies involved the student in the construction and analysis of two and three dimensional images, not to develop professional artists or designers, but essentially to encourage concern for the process of observation-analysis-communication.

The experinces of the Fall Quarter were directed mainly toward the realization of the role played by emotions in the process of seeing and interpreting one's environment, the development of a kinesthetic conception of form and structure, and the gradual development of skills in the manipulation of materials into effective communication.

In the Winter Quarter, the students experimented with a variety of organizational line systems, had a simplified experience in perspective drawing, and ended with a three-week study of color.

In the Spring Quarter, the students explored the potential of image distortion, the construction and communication of a solid form, and the design of charts which visually and verbally communicate a particular system of symbols, such as those used in astronomy, cartography, and biology. The quarter ended with an examination of problems in the communication of statistical data and a study of the visual correlation of this data in charts and graphs.

An Investigation of Culture. J. L. Ellison, a cultural anthropologist in the Francis Parker School in Chicago, prepared the course outline, suggested materials, and introduced the course, An Investigation of Culture, by telephone lecture. Ideas such as cultural focus, ethos, status, role, and ideal types were illustrated and discussed.

At the end of Winter Quarter the course was concluded with a documented essay on the student's definition of human nature and the effect of human nature upon the total structure of human society. Source material was drawn from the concepts of the existentialist philosophy, from the ideas of the nineteenth century naturalists, and from the views of cultural anthropologists whose works were used in the course.

Iconography of God. The Iconography of God study employed a filmed series by Houston Smith, professor of philosophy of religion at Washington University, and a series of live lectures illustrating the development or lack of development of particular icons for each of the major religions. Three texts were used: Key Monuments of the History of Art by H. W. Janson, The Religions of Man by Houston Smith, and A Critique of Religion and Philosophy by Walter Kaufmann.

Behavioral Psychology. Israel Goldiamond of the Department of Psychology of Arizona State University presented five telephone lectures for the Behavioral Psychology course. These lectures were used in conjunction with the programmed textbook, The Analysis of Behavior, by Holland and Skinner. The students worked independently on the programmed textbooks and were required to pass unit examinations with ninety per cent accuracy.

Group II

The students in Group II experienced three primary treatments. The first was a limiting of the number of assigned credit hours of course work for the students. The second was a required remedial studies program. The third was an intensive counseling program. R. J. Kibler coordinated Group II.

Credit Hours Limitation Treatment. The students in Group II were enrolled Fall Quarter for a maximum of nine hours in general education courses. Non-credit remedial work in such courses in the general university curriculum as English and mathematics was considered the equivalent of three credit hours. During the Winter and Spring Quarters classes were scheduled on the basis of specified grade average criteria.

Remedial Studies Treatment. The Remedial Studies Program was a three-quarter sequence designed to develop the basic knowledge, study, and examination skills necessary for successful academic experiences. No college credit was assigned for these courses. During the Fall Quarter Francis Robinson's Effective Study was used as the text for the remedial course.

Programmed instruction was introduced in the second course in the Remedial Studies Program for Group II. Pre- and posttests were administered

for the programmed instruction in English and mathematics. A level of ninety per cent accuracy was required on all unit and program posttests for the programmed instruction materials.

Counseling Treatment. The emphasis in the counseling treatment was placed on discovering useful principles that would aid the educator in counseling students. The voluntary counseling in which these students participated was similar to the typical student-teacher conference. The students were required to take part in counseling for scheduling classes, in special conferences, and in group counseling sessions.

A group counseling program was created to satisfy the counseling treatment specified in the design. The group counseling sessions were labeled as "group seminars" as a precaution against the students' developing unfavorable attitudes toward the sessions.

The topics for the Fall Quarter were student-centered. The students were encouraged to discuss any experiences or problems they encountered, The staff attempted to direct and relate these topics to academic success in college. The topics for Winter Quarter counseling sessions were related to broad social issues. Some fifty possible topics were given to the students for their consideration, but the students were also free to select other topics. Spring Quarter topics were selected by individual groups.

Contact Hours. The average number of contact hours the Group II students had with the staff per quarter was 14.5 in the Fall Quarter, 16.0 in the Winter Quarter, and 15.5 in the Spring Quarter.

Group III

The students in Group III served to control the Hawthorne effect in the study. These students were given the same pre- and posttest batteries that the students in Groups I and II experienced.

The students in Group III were enrolled in the regular general education courses offered by the University. Most of the students in this group were registered for twelve quarter hours of credit during the Fall Quarter. The number of hours for which the students in this group registered for Winter and Spring Quarters was determined by the University advisers and based on the criteria applied to regularly enrolled students.

Groups IV, V and VI

The students in Groups IV, V, and VI did not actually participate in the EFY Program and were unaware that their academic records were being used. Transcripts of their course records and enrollment information, which were used in the statistical analysis of the EFY Program, were obtained through the Registrar's Office. The students in these three groups entered the University under the normal admission criteria, were advised through the University advisement program, and were required to meet all of the conditions specified for regularly enrolled students at Southern Illinois University.

Summary

1. The subjects for the study were 475 freshmen who entered Southern Illinois University in 1962-63. Half of the sample had ACT composite scores of 20 or above, and the other half, 19 or below. Subjects from each of the two ACT categories were randomly assigned to six groups: two experimental, two control, and two norm. The 275 subjects in the two experimental and two control groups were from the lowest one-third of their high school graduating classes. The 200 subjects in the two norm groups were from the highest two-thirds of their graduating classes.
2. Selection procedures were as follows: (a) subjects were recommended by high school counselors and selected through personal interviews, (b) subjects were notified by the Admissions Office, and (c) subjects who were to experience no experimental treatment were selected from registration lists.
3. Three control variables were examined to determine whether the six groups were equally matched at the beginning of the program.

First, an analysis of the subjects' ACT composite scores showed that (a) Group IV was significantly lower than Groups II, III, V and VI, (b) Group V was significantly higher than Group I, (c) there were no significant differences among the ACT High subgroups, (d) Group IV Low's were significantly lower than the other five Low subgroups, (e) within each of the six groups the High's were significantly higher than the Low's, and (f) the mean ACT score for all High's was significantly higher than the mean for all Low's.

Second, an analysis of the distribution of males and females among groups indicated that the number of females in Group V and in Group VI

was significantly greater than the number of females in each of the other four groups. Correspondingly, the number of males in Groups I, II, III, and IV was, in general, significantly greater than the number of males in Groups V and VI. This difference was expected.

Third, an analysis of questionnaire data for Groups I, II, and III indicated the groups and subgroups were acceptably matched in regard to biographical, school-related, parent-related, and self-evaluation variables at the start of the program.

4. The treatments prescribed were: (a) Subjects in Group I experienced a specially designed core curricula program employing a variety of instructional procedures in which the total was taught by laboratory, lecture, and discussion; (b) Subjects in Group II were restricted in the number of credit hours of regular general education courses they could carry each quarter, had a counseling program, and had special remedial instruction courses; (c) Subjects in Group III had only administrative contact with the EFY Program, received no special educational treatment, and were enrolled in regular general education courses; (d) Subjects in Groups IV, V, and VI received no treatment and had no contact with the EFY staff or program.

Appendix A

Brochure and Letter Sent to High School Officials.

Southern Illinois University has initiated an experimental program for the intellectual rehabilitation of potentially creative young men and women from the State of Illinois who rank in the lower one-third of their high school graduating class. This program will attempt to provide a direction for a continued effort to save this intellectual wealth.

This educational research project is called "SYNERGETICS."

Synergetics is based on the premise that a self-motivating, self-sustaining educational effort is possible when knowledge is treated as an associative whole, rather than as the established departmentalized fragmented program.

The plan is to first screen and then select, by personal interview and newly designed tests, applicants who satisfy the five eligibility requirements listed on the following page.

The selected two hundred students will be admitted to Southern Illinois University in the fall, 1962 for this special one-year intellectual rehabilitation program.

The program will be evaluated in summer, 1963 to determine whether the initial goals have been met, that is, whether this group is intelligently equipped and motivated to go on with their education in the subject-hour fragmentation of the University in which all students must now work.

Eligibility Requirements for the Synergetics Program

1. A person must be an Illinois resident.
2. A person must be a graduate of a recognized Illinois high school.
3. A person must rank in the lower one-third of his high school graduating class.
4. A person must score below a prescribed composite standard score in the American College Testing Program (A.C.T.). A person who finds it impossible to take the A.C.T. tests may have scores from the College Entrance Examination Board (C.E.E.B.) submitted. The specific scores which must be submitted if the C.E.E.B. tests are substituted are the scores from S.A.T. (Scholastic Aptitude Test); English Composition Test; and Mathematics (Intermediate) Test.
5. A person must not previously have attended college.

Description of Possible Applicants

High aptitude—low performance: The student exhibits intellectual potential but because of known or unknown factors is not motivated to exploit this recognized capacity.

One-interest directed: The student concentrates the great majority of his time and interest in one particular area and consequently slights other essential areas of development. (This one area need not be one of the high school academic disciplines.)

Delayed intellectual maturation: The student may have realized his desire or need for higher education in his later years of high school and has failed to prepare himself adequately.

Educational non-conformist: This student may be the courageous individualist who has refused to accept the patterns of our educational system and ranks low in the standard measurements.

Creative performer: The student shows unusual capacity in those areas that demand original thinking or performance but often is unable to perform in pre-structured courses.

Procedure for Selecting Eligible Persons for Interviews and Testing

All the persons whose names we receive satisfying the eligibility requirements as stated above will be contacted directly by mail. The mailing will include information about the Synergetics program; notification of their eligibility for the Synergetics program; a booklet of general information introducing the programs and facilities of Southern Illinois University; and forms to be completed by the student, by his principal and by one teacher of his choice.

When all the necessary information on an applicant is compiled, he will be contacted by phone or mail. An appointment will be made for an interview and examination to take place at the Synergetics Office at Southern Illinois University.

Selection and Notification of Applicants

Notification of the 200 applicants selected for the Synergetics program will be made by mail in June. Along with notification the applicant will receive the standard University admissions data and the specific procedures utilized by Synergetics.

The selected students will enter Southern Illinois University in the Fall Quarter 1962 and will participate in the Synergetics program for one year. Upon completion the student will be evaluated and advised on the selection of courses for continuing his studies at the University.

Individuals associated with Illinois high school youths are being asked to participate with us by submitting names of possible applicants who satisfy the eligibility requirements for the Synergetics program.

If a student has not taken the A.C.T. or C.E.E.B. test, which may often be the case with a student not planning to attend college, he should be informed of the Synergetics program by his principal, counselor, or teacher and should be advised to take one of the entrance examinations. The student should request that his scores on the battery be sent to Synergetics, Southern Illinois University, Carbondale, Illinois.

Harold L. Cohen, Director • Synergetics • Southern Illinois University • Carbondale, Illinois • Tel. 453-2444

COPY

March 23, 1962

COPY
SYNERGETICS
SOUTHERN ILLINOIS UNIVERSITY

Dear Principal:

Many competent and creative young people who have the potential for higher education do not enter a university. The loss of such creative minds in our society is a loss of wealth, irreplaceable by material means or by any industrial tool. Because of this intellectual waste, I am seeking your help.

Often an educator is confronted with a student, who for many reasons (environmental, social, financial) has not used his intellectual and creative capacities. Discouraged by his graded performance (he ranks in the "lower one-third" of his graduating class), he decides not to continue his education.

There are young men and women from the "lower one-third" who are interested in going on to the university, but who have not prepared themselves adequately for the entrance examinations. Consequently, they score poorly on these tests.

These two kinds of students are but examples of a larger category. I believe that a carefully selected group of young men and women from this category can, with a special program, be brought to a performance level equal to their innate capabilities.

I am asking you to bring the enclosed description of our program to the attention of your counselors and teachers. Through your personal attention, I hope to compile a list of possible students for our program.

Attached is a brief description of the aims of "Synergetics" (the title of this new educational research program), the eligibility requirements of the Synergetics applicant, and the procedure for the final selection of the Synergetics students.

The interviewing and testing of potential Synergetics students begins in April, 1962. The selected students will be notified by June and admitted for the fall term, 1962.

It would be most valuable to have the opportunity to sit with you to discuss the Synergetics program which is being initiated at Southern Illinois University. Unfortunately, time does not permit personal contact with each of the principals of Illinois high schools.

Your cooperation, as well as the cooperation of all other high school principals in this state, is of vital importance to the success of this project. If you have any possible applicants or questions relative to this program, please feel free to write or call me.

Sincerely yours,

Harold L. Cohen, Director
Synergetics

HLC:mss

Enclosure

Appendix B

Letters Sent to High School Students and Parents

SOUTHERN ILLINOIS UNIVERSITY
CARBONDALE ILLINOIS

SYNERGETICS

Tel. 453-2444

Your high school administration has given us your name as a possible candidate for our new educational project at Southern Illinois University.

The underlying reason for initiating this new program is the belief that there is a group of young men and women in the State of Illinois who have a much greater capacity for intellectual and creative performance than their high school records and national testing programs indicate.

Your high school officials believe that you are in this group and that you deserve a chance to gain entrance to this special program, which is designed to further your education and to put this potential to use.

If you are interested in applying for this Synergetics program, please write me a personal letter telling me about yourself and give the enclosed form to your counselor or principal.

After receiving your personal letter and the completed form from your high school administrator, we will contact you by telephone or mail. You will be assigned a date for your interview and tests which are to be given at the Carbondale campus. The personal interview and tests are designed to record your performance level.

If you are selected, you will enter Southern Illinois University in the Fall Quarter, 1962, and will participate in the Synergetics program for one year. Upon completion you will be evaluated and advised on the selection of courses for continuing your studies at the University.

Sincerely yours,

Harold L. Cohen, Director
Synergetics

HLC:jem

Enclosures

SOUTHERN ILLINOIS UNIVERSITY
CARBONDALE, ILLINOIS

S Y N E R G E T I C S

tel. 453-2444

Spring, 1962

Dear Parent or Guardian:

Your child has been recommended to me as a possible applicant for a new educational research program being initiated at Southern Illinois University. This program has two functions: 1. To search for creative individuals who rank in the lower one-third of their high school graduating class; 2. To utilize the intellectual and creative abilities of those selected by employing a new educational method which is to prepare them for continuing their university education.

Each year in Illinois, thousands of high school seniors and graduates apply for entrance to universities. Of these applicants, a considerable number rank in the lower academic one-third of their high school graduating class. At Southern Illinois University these applicants undergo a testing program which determines whether they will be admitted to undergraduate study. Many fail to qualify for fall admission on the basis of these tests.

In addition, there is a large number of high school students who, discouraged by low grades, or disinterested in school, do not even attempt to gain admission to college. Instead, they discontinue their education.

The question that has always been with us is how much genuinely high intellectual capability is lost to society because of the failure of the "lower" academic performers to continue their education. In order to determine which young intellects should have priority for

admittance to a higher educational system which has a limited capacity, elaborate procedures of testing have been developed.

There is increasing evidence that a great number of latent creative minds, whose intellectual potential is not revealed by achievement or aptitude tests or even competent guidance counseling, never reach a school environment where they might be nurtured into full capacity.

Leslie J. Nason, professor of education at the University of Southern California, holds that

> The pattern of abilities, skills, influences, drives, goals and habits do not always show up in test results. Indeed, some of these things are not testable in this way.[1]

According to a University of California research team, many of America's highly creative young students do not have academic records that would admit them to higher study. Dr. Donald W. MacKinnon, director of the University's Institute of Personality Assessment and Research, states

> There seems to be no relation between the degree of intelligence that exists and a person's creativity.[2]

It is my conviction that, among each year's crop of discouraged applicants for admittance to higher education, there is a substantial number of young people who possess outstanding potentials for intellectual and creative growth.

I believe that these minds, given a new, carefully designed educational environment and experience, can be brought to levels of performance well above those normally expected in the course of standard educational procedure, or predicted by standard tests.

Southern Illinois University, through its research program, has initiated an educational research project entitled, "Synergetics",

whose purpose is to select 200 individuals from the "lower one-third" and establish a special one year experimental course.

If your child qualifies as a Synergetics applicant, he will be given a date when he is to come to the Carbondale Campus for his personal interview and for a series of specially designed tests. We will inform all applicants who are selected for the program by June, 1962. The selected students will enter Southern Illinois University in the Fall Quarter, 1962, and will participate in the Synergetics program for one year. Upon completion the student will be evaluated and advised on the selection of courses for continuing his studies at the University.

If your child does not qualify, he still may enter the University (See enclosed brochure, "This Is Southern," page 3).

Please feel free to write me about any question, either general or particular, you might have about the Synergetics program.

Sincerely yours,

Harold L. Cohen, Director
Synergetics

HLC:emc

Enclosure

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[1]Article, Cincinnati Enquirer, January 7, 1962.

[2]Article, St. Louis Post Dispatch, December 14, 1961.

Appendix C

Interview and Testing Procedure

Interview and Testing Procedure

The following is a detailed description of the interview and testing procedures employed together with the rationale for grading and evaluating the tests and samples of the tests and forms used.

Twenty-Four Hour Summary. Each applicant was asked to write a summary of his experiences for the twenty-four hour period of time preceding his arrival at the EFY office. The applicants were told to write the summary in any style and to include whatever information they wished. They were also told to spend approximately thirty minutes' writing time. The purpose of the summary was to get some idea of each applicant's current verbal ability. It was planned that the information on each applicant's verbal skill would be used in preparing course work for the EFY Program. A college English teacher, who was employed to teach the verbal studies courses in the EFY Program, graded the applicants' summaries using a numerical system with a maximum of twenty points to be distributed among the following criteria: standard mechanics of composition, the organization of chronological or sequential occurrence, insight and intelligence in eclecticism, and disposition or aptitude in content.

The standard mechanics included the applicant's proficiency in grammar, his level of vocabulary, the complexity of his sentence structure, and directness of communication.

The organization of the paper was judged upon its emphasis, unity, and coherence. Perceptiveness to form was considered.

The insight and intelligence were considered in the patterns of development and in the use of purposeful details that reflected clarity of ideas and understanding of English syntax.

Rating the disposition of the writing aptitude and perspicuity was subjective, because it entailed the attitude of the reader's interpreting content through choice of words and sentence structure.

Interview. Before being introduced to each new applicant, the interviewer examined each applicant's file folder. The folder usually contained:

a. A letter of recommendation from the applicant's principal or counselor although this was not present for applicants who were notified by the Southern Illinois University Admissions Office.

b. The applicant's high school and personal letter requesting an appointment.

Some of the applicants' folders were not complete. These instances were indicated on the interview forms and recorded on the tape. Any deviations in the interview procedure were also reported on the forms and on tape. Throughout all the interviews, the interviewer attempted to maintain the same order of questioning; the order was prescribed on the mimeographed interview form, a copy of which is included at the end of the appendix. The following particular questions were added after approximately twenty applicants had been interviewed.

a. (Between hobbies and pets) Do you have your own room? Describe the room to me. (At this point, the interviewer put down his pen and did not attempt to write any part of this description.)

b. (Between self-description or personality and reasons for wanting to go to school) What do you enjoy doing more than anything else? Something you really like.

Examples of other questions:

a. Best friends:

1. Give me the name and age of your best bosom pal.

2. What are his interests?

3. What are his plans for the future?

4. Give me the name and age of your next best pal.

The interviewer attempted to list four friends.

An attempt was made to record the applicant's key statements on pages one through three of the interview form. Page four was used for the interviewer's comments and final evaluation. A complete record of the interviews was acquired on audio tape, a microphone being concealed under the interviewer's desk and connected to a tape recorder in an adjoining room. The applicants were not informed that the interviews were being taped. During the many weeks of taping, some electronic difficulty developed and about eighteen interviews were not recorded.

The decision of whether or not the applicant was selected was made at the end of the interview. This decision was made after the applicant left the room and was prior to the administration and evaluation of the tests.

The interviewer indicated his decision by marking a rating of the applicant on a zero to twenty scale on the interview form. Also a brief summary of the rationale behind his decision was recorded on the audio tape.

The rating of from zero to twenty represented the interviewer's prediction of the applicant's chances to succeed in college after having experienced the special one-year educational program which was to be conducted. A rating of eighteen, for example, indicated that the interviewer

considered it highly probable that an applicant would succeed in college after the EFY Program. A rating of four would represent the interviewer's prediction that it was very unlikely that the applicant would complete a college education after experiencing the EFY Program.

The criterion used for selecting the applicants was a subjective system originated by the interviewer, Harold Cohen, who was also the originator of the Experimental Freshman Year Program.

One of the constructs which the interviewer reported as being employed in selecting applicants was whether the applicant indicated a strong interest or conviction about any particular idea or activity. For example, an applicant who indicated that he was mildly interested in a number of activities was considered less favorable when compared with an applicant who reported at least one area of strong interest. The nature of the activity or idea was not considered an important variable. An applicant reporting a dedicated interest in automobiles was not ranked higher or lower on this construct than another applicant reporting a dedicated interest in classical music, electronics, or social justice.

Any changes in the overall interview procedure, such as the interviewer's fatigue or extreme room temperature, were noted on the interview forms and on the audio tape.

Tests. Four tests were administered to the applicants after they had been interviewed. The testing sessions lasted approximately one and one-half hours and were administered to from three to six applicants at each session.

Prior to distributing the first test, the following information was given: "The tests you are about to take will have no bearing on your

selection for the Experimental Freshman Year Program. These tests were designed to give us particular information about some of each individual's undeveloped skills and outstanding abilities. In the case that you are selected for the EFY Program, we will be better prepared to satisfy your particular educational needs."

The instructions for the first test, the word association test, were read aloud as the applicants read to themselves. The time allotted for this test was twenty minutes. An example of this test is included at the end of this appendix.

The word association test was graded on the basis of the number of different meanings written by the applicant for each of sixteen words on the test. The individual's score depended upon the variety of meanings, not upon repetition or minor variations of the term. The actual scores were computed by summing the independent meanings for the sixteen words on the test.

When subtle distinctions in terminology became apparent, the student was given credit for the shades of definition. For example, the word arm is an extension or limb. If this general definition was given, it was acceptable for one point. However, if the student wrote, "1. a human upper limb, and 2. a branch of a tree," the answer received two points because there was distinction made between man and vegetation. If the answer read, "1. a man's upper limb, and 2. a woman's upper limb," credit was given for one answer only, because the definition applied only to the human extension.

Further credit was given when the word was expressed in its various parts of speech or in its expression of cliche' or jargon since these

indicate a fuller understanding of the word and its usage. For example, an arm is a weapon when the word is used as a noun. Arm becomes a verb when used in the infinitive meaning to equip or outfit for action or operation. "To welcome with open arms," though a cliche', was considered an acceptable association.

The second test administered was termed "visual observation recording." A large pad of paper and a black felt tip marker were provided for each applicant, and the following instructions were read aloud by the examiner.

"The test you are now to take is not a test of your art ability, but merely a way of examining how you record by drawing what you see. Now, pretend that your eyes are a camera, and record as best as you can, by drawing, the potted plant and the stool it is sitting upon." (These objects were in front of the testing room, a distance of approximately eight feet from the applicants.) "You will do it twice. The first time you will have four minutes; the second time you will have two minutes." The applicants' drawings were not analyzed or evaluated but were referred to by the interviewer in some instances.

The inspection and components tests which were subtests of the Flanigan Aptitude Classification Test battery, were administered with the standard examiner's manual. The inspection test, which was the third test administered, was a test of the ability to spot flaws or imperfections in pictures of small objects quickly and accurately. The applicants were scored for the number correct and the number incorrect. The fourth test, the components test, was a test of the applicant's ability to identify a simple figure which was disguised as part of a complex drawing. Both the number of items correct and the number incorrect were recorded.

Notification. Upon completing the tests, the applicants were informed that they would be notified within two weeks whether they were selected for the Experimental Freshman Year Program.

Letters were sent to all applicants informing them of whether or not they had been selected. Those who were selected were informed that they would receive further information regarding their enrollment for the Fall Quarter. The applicants who were not selected were informed of that fact and were told that they were eligible to enter Southern Illinois University in any quarter other than fall.

SYNERGETICS

STUDENT INTERVIEW

DATE: _____

TOWN: _____ POPULATION: _____

HIGH SCHOOL _____ ENROLLMENT: _____

NUMBER IN GRADUATING CLASS: _____

NAME: _____ AGE: _____

HOME ADDRESS: _____ HOME PHONE: _____

FATHERS NAME: _____ AGE: _____

FATHERS EDUCATION: _____ OCCUPATION: _____

COMPANY NAME & ADDRESS: _____

MOTHERS NAME: _____ AGE: _____

MOTHERS EDUCATION: _____ OCCUPATION: _____

COMPANY NAME AND ADDRESS: _____

BROTHERS NAMES & AGES: _____

EDUCATION & OCCUPATIONS: _____

_____

_____

_____

SISTERS NAMES & AGES: _____

EDUCATION & OCCUPATIONS: _____

_____

_____

ELEMENTARY SCHOOL: _____

_____

SYNERGETICS

STUDENT INTERVIEW

DATE: _____

TOWN: _____ POPULATION: _____

HIGH SCHOOL _____ ENROLLMENT: _____

NUMBER IN GRADUATING CLASS: _____

NAME: _____ AGE: _____

HOME ADDRESS: _____ HOME PHONE: _____

FATHERS NAME: _____ AGE: _____

FATHERS EDUCATION: _____ OCCUPATION: _____

COMPANY NAME & ADDRESS: _____

MOTHERS NAME: _____ AGE: _____

MOTHERS EDUCATION: _____ OCCUPATION: _____

COMPANY NAME AND ADDRESS: _____

BROTHERS NAMES & AGES: _____

EDUCATION & OCCUPATIONS: _____

_____

_____

_____

SISTERS NAMES & AGES: _____

EDUCATION & OCCUPATIONS: _____

_____

_____

ELEMENTARY SCHOOL: _____

_____

NAME _____

SUMMER SCHOOL: _____

CAMPS: _____

_____

WORK EXPERIENCE: _____

_____

_____

_____

TRANSPORTATION MEANS: _____

HOBBYS: _____

_____

PETS: _____

BEST FRIENDS: _____

_____

_____

_____

_____

BOOKS: _____

_____

MAGAZINES: _____

_____

MOVIES: _____

_____

T. V. PROGRAMS: _____

_____

FAVORITE ACTOR, SINGER, TEACHER: _____

_____

NAME _____

MUSIC: _____

_____

DANCE: _____

ATHLETICS: OBSERVE, PARTICIPATE: _____

_____

CLUBS: _____

_____

_____

SELF DESCRIPTION OF PERSONALITY: _____

_____

_____

_____

_____

_____

_____

_____

REASONS FOR WANTING TO GO TO SCHOOL: _____

_____

_____

REASONS FOR POOR PAST PERFORMANCE: _____

_____

_____

GIVEN UNLIMITED FUNDS ? : _____

_____

_____

NAME: _____

OTHER COMMENTS: _____

EVALUATION: _____

Name_____ Major_____ Date_____

WORD ASSOCIATION

Listed below are twenty-five words that have more than one meaning. In the space following each word, you should write down as many of the meanings as you can. The meanings need not be written out in full; writing down one word will usually do. For example:

BARK tree, dog, seal, boat

These four words bring to mind three different meanings for the word BARK: the outer covering of a tree; a certain noise made by some animals like dogs and seals; and a kind of boat. Notice that the meanings were not written out in full; only some words to remind us of these meanings were given. This is all you have to do.

Your score will depend both on the number of different words you write (in the example above this was four) and on the number of different meanings the words remind us of (in the example above this was three). So if you had time to write only two words for BARK, you would choose tree and dog, say, rather than dog and seal because the former words stand for two meanings but the latter words stand for one meaning.

When you are sure of what you are to do, you may begin.

1. ARM_____

2. BIT_____

3. BOLT_____

4. CAP_____

5. COIL_____

6. DUCK_____

7. FAIR _____

_____

8. FAST _____

_____

9. FILE _____

_____

10. GRAVE _____

_____

11. HOST _____

_____

12. LEAF _____

_____

13. MORTAR _____

_____

14. PINK _____

_____

15. PITCH _____

_____

16. PLANE _____

_____

17. POKE _____

_____

18. POLICY _____

_____

19. PORT _____

_____

20. PUNCH _____

_____

21. RAKE _____

_____

22. SACK _____

_____

23. STRAND _____

_____

24. TACK _____

_____

25. TENDER _____

_____

Appendix D

Letter Sent to Students Whose Names Were Obtained from the Southern Illinois University Admissions Office

S Y N E R G E T I C S

Tel. 453-2444

We have received a copy of your records from the admissions office. Your records indicate that you are eligible to apply for a special program called Synergetics, inaugurated this year at Southern Illinois University.

The underlying reason for initiating this new program is the belief that there is a group of young men and women in the State of Illinois who have a much greater capacity for intellectual and creative performance than their high school records and national testing programs indicate.

A new educational method will be employed which will attempt to activate the full capacity of the selected students and equip them for continuing on with their university education. The student can, depending on his effort, interest and caliber, complete approximately bewteen 24 and 42 quarter credit hours for the year.

If you are interested in applying for this Synergetics program, please write me a personal letter telling me about yourself.

Upon receipt of your letter, you will be assigned a date for your interview and newly designed tests which are to be given at the Carbondale campus.

If you are selected, you will enter Southern Illinois University in the Fall Quarter, 1962, and will participate in the Synergetics program for one year. Upon completion you will be evaluated and advised on the selection of courses for continuing your studies at the University.

Sincerely yours,

Harold L. Cohen, Director
Synergetics

HLC:jma

Appendix E

Letter Sent to Students from the

Southern Illinois University Admissions Office

Admissions Office

Various studies have been made by individuals on this campus as well as on other university campuses concerning the achievement of those students who graduate in the lower section of their high school graduating class but yet have potential, based upon test scores, to do creditable college work.

The university, realizing that perhaps your potential is greater than your achievement, is now planning a special program for students who may be admitted on probation for the fall quarter. This program is called Experimental Freshman Year. You have been selected for this program and your admission status is a special category. Because of this program, you will be given an opportunity to develop the particular skills needed for you to improve your scholarship. As a result, your chance of succeeding in college should be improved.

Since housing accommodation is a problem, you should come to Carbondale to find housing at the earliest possible moment. You should contact the Housing Office here on compus for information.

You will receive at a later date further information concerning the special advisement. We believe you and your parents will be pleased to be a part of this program for regular college credit. We are looking forward to having you on our campus this fall.

In the meantime, if you have any questions concerning this program, please write to Dr. John O. Anderson, Director of Research and Projects, Graduate School, Southern Illinois University, Carbondale, Illinois.

Sincerely yours,

Wilbur R. Venerable
Acting Director of Admissions

WRV:jma

Office Hours: 8-12 and 1-5; Sat.: 8:30-12
During Summer Months: 7:30-12 and 1-4:30; Sat.: 8:30-12